primarily to the secondary infection of the skin. This shows that in such experiments asepsis must be rigidly observed, not only during the operation but during all the post-operative period.

Conclusions.—(1) The circulation of a replanted limb, reestablished an hour and a quarter after interruption, by end-to-end anastomosis of the femoral artery and vein, is normal, as judged by the metabolism of the limb. (2) No trophic trouble occurs (at least during ten days). (3) Healing of the severed tissues appears to be as rapid and complete as after an ordinary surgical wound.

Alexis Carrel,
C. C. Guthrie.

SUCCESSFUL TRANSPLANTATION OF BOTH KIDNEYS FROM A DOG INTO A BITCH WITH REMOVAL OF BOTH NORMAL KIDNEYS FROM THE LATTER.

This operation was performed by our new method of *transplantation in mass,* which yields good results in the transplantation of organs. By this method the organs are permitted to retain their normal connections with a portion of their nervous apparatus, in such a manner that after transplantation their functions are soon reestablished.

A large-sized terrier was anesthetized and both kidneys and the upper part of the ureters were removed, together with their vessels, nerves, nervous ganglia, the surrounding connective tissue, the suprarenal glands, the peritoneum and the corresponding segments of the aorta and vena cava. The mass was then placed in a vessel of isotonic sodium chloride solution, and the dog killed.

A small young bitch was then anesthetized and the abdomen opened through a half circular transversal laparotomy. The aorta and vena cava were cut a little above the mouth of the ovarian vessels. The kidneys of the dog were then removed from the salt solution and put into the abdominal cavity of the bitch, and the segments of the aorta and vena cava were interposed, by biterminal transplantation, between the cut ends of the aorta and vena cava of the bitch. The circulation was reestablished, after having been interrupted for one hour and a half. The kidneys immediately became red and turgid, as after a simple transplantation, but about half an hour later the state of the circulation became normal, so that no difference could be detected between the transplanted and the normal kidneys. Clear urine flowed abundantly from the transplanted ureters, which were united to the normal ones.

Both normal kidneys were dissected and extirpated. The appearance of the transplanted and normal organs is so similar that in extirpating the latter, it is necessary to examine the pedicle in order to be certain of their identity. The operation was completed by suturing the abdominal wall and applying the dressing. Two hours after the operation the animal walked about her cage. In the afternoon she drank and urinated copiously. The following day and subsequently, up to the present time, her diet has largely consisted of meat. She drinks, eats, walks and, when permitted to, mingles with other dogs, but in the latter case she is carefully watched, as she shows a strong disposition to fight. As far as can be detected, her condition is normal. The urine has been clear throughout, showing no evidence of containing blood. The total amount appears to be somewhat increased. On the seventh and eighth days several samples were collected and analyzed, the results of which showed a slight variation in composition, but entirely within normal limits. The only abnormal constituent detected was coagulated proteid, the largest amount present in any of the samples being less than 0.25 per cent. A brief result of the analyses is given below:

Urine collected on the eighth day after the operation.

Color—pale yellow.

Odor—normal.

Reaction—slightly alkaline.

Urea—1.95 per cent.

Uric acid—trace.

Chlorides, sulphates and earthy and alkaline phosphates, normal.

Kreatinin, doubtful; indoxyl, none.

Coagulable proteid, less than 0.25 per cent.

Sugar and petone, none.

It was inconvenient to collect the total urine

for twenty-four hours, as it was deemed advisable to allow the animal to move about freely. Therefore, no exact quantitative figures for the urine per diem can be given for this period of the experiment. She will be kept as long as possible in order to continue the observations on the functions of the transplanted kidneys.

ALEXIS CARREL,
C. C. GUTHRIE.

NOTES ON ENTOMOLOGY.

AMERICAN plant lice have unfortunately been studied from the standpoint of locality, and published in non-entomological serials. Mr. Sanborn in his 'Kansas Aphides'[1] has continued this practise. This article deals only with Kansan species, but the entire title indicates that catalogue and plant-lists are to follow, we hope in the near future. Mr. Sanborn has prepared his descriptions in a most systematic and careful manner, and in many cases refrained from naming species that could not be satisfactorily determined. He has given descriptions of all the genera recorded from the United States, yet we fear that he has not studied them as carefully as demanded by the confused nature of the subject. The numerous (twenty-two) plates are good, and a great help in identification. There are several confusing mistakes in the arrangement of the text; such as *Myzus biennis*, p. 78, and *Siphocoryne avenæ*, p. 61, due to the fact that the author did not supervise the publication of his paper.

ANOTHER considerable installment of Wytsman's 'Genera Insectorum' includes some groups of particular interest to American entomologists. Pastor F. W. Konow has treated of the entire Chalastogastra or sawflies, in three fasicles, 27 on the Lydidæ, 28 on the Siricidæ, and 29 on the Tenthredinidæ. These list some 2,700 species arranged in 185 genera. The author seems unjustly inclined to lump many American species, doubtless on account of insufficient material. Fascicle 30 by H. Schouteden is on the subfamily Grapho-somatinæ of the Pentatomidæ. Only a few species in three genera are from the United States, the group, as a whole, belonging to the Indo-Asiatic fauna. Fascicle 31 by H. Stichel on the Discophorinæ, a group of butterflies, contains only tropical forms. Fascicles 32 and 33 are on the Megascelidæ and Megalopidæ, small groups of the Chrysomelidæ, and under the joint authorship of M. Jacoby and H. Clavareau. The forms are mostly tropical, chiefly from South America. Fascicle 34 by Gv. Szepligeti includes a number of small sub-families of the Ichneumonidæ, from the Pharsalininæ to the Porizontinæ. Many North American species are included in his catalogue. Fascicle 35 is by J. Desneux on the Paussidæ, an old-world family of curious beetles, many of which occur in the nests of ants and termites.

LIEFERUNG No. 22 of 'Das Tierreich' treats of the Heliconidæ, a family of tropical American butterflies. It is by H. Stichel and H. Riffarth. Very properly they have refrained from dividing genera and species to the utmost limit, but have placed many forms as subspecies and varieties. While there are but 87 species, there are nearly 150 named forms. The descriptions are longer and more detailed than in earlier 'Lieferungs' of the work. Our *Heliconius charithonia* is the typical form of the species; another subspecies, *H. c. peruvianus*, occurs in northwestern South America.

M. LASS treats of the structure of the female flea.[2] He has examined especially the anatomy of several internal organs, but also writes of external morphology. He finds that the larva, pupa and adult have each ten abdominal segments, that the sex is recognizable in half-grown larvæ, that the larvæ have no eyes, and that there is no hypopharynx. He thinks they have few relations with the Diptera, and considers them a special order between Diptera and Coleoptera.

NATHAN BANKS.

[1] 'Kansas Aphididæ, with a Catalogue of North American Aphididæ, and Host-plant and Plant-host List,' *Kans. Univ. Sci. Bull.*, III., No. 1, pp. 3–82, 1905.

[2] 'Beiträge zur Kenntnis der histologisch-anatomischen Baues des weiblichen Hundeflohes (*Pulex canis* Dugès s. *Pulex serraticeps* Taschenberg),' *Zeitsch. wiss. Zool.*, LXXIX., pp. 73–131, 2 pls., 1905.